CLAIMS

1. Separated calcium phosphate platelet which exhibits a monetite or predominant monetite or deficient apatite structure and which has a length of between 250 nm and 800 nm.

2. Calcium phosphate platelet according to Claim 1, characterized in that the length is between 250 nm and 600 nm, preferably between 250 nm and 400 nm.

3. Calcium phosphate platelet according to either of the preceding claims, characterized in that its thickness is between 1 nm and 40 nm.

4. Calcium phosphate platelet according to one of Claims 1 to 3, exhibiting a chemical shift of between -1.4 ppm and -1 ppm, measured by phosphorus-31 MAS NMR, assigned to the monetite structure.

5. Calcium phosphate platelet according to one of Claims 1 to 3, exhibiting a chemical shift of between 3 ppm and 3.4 ppm, measured by phosphorus-31 MAS NMR, assigned to the apatite structure.

6. Calcium phosphate platelet according to one of Claims 1 to 5, characterized in that it exhibits a calcium to phosphorus molar ratio of between 0.95 and 1.4 for the monetite structure, preferably of between 1.1 and 1.3, and of between 0.95 and 1.4 for the monetite structure mixed with the brushite and apatite structure, preferably of between 1.1 and 1.3.

7. Calcium phosphate platelet according to one of Claims 1 to 3, characterized in that it exhibits a calcium to phosphorus molar ratio of between 1.25 and 1.67 for the deficient apatite structure, preferably of between 1.3 and 1.6.

8. Dispersion comprising calcium phosphate platelets according to one of Claims 1 to 7.

9. Colloidal dispersion obtained by suspending calcium phosphate platelets according to one of Claims 1 to 7 in the presence of a dispersing agent.

10. Process for preparing the platelets according to Claims 1 to 6, characterized in that it comprises the following stages:

i) preparing a solution of calcium salts, the pH of which is between 4 and 6;

ii) adding a phosphate solution to the solution obtained in stage i) over a period of time of between 30 minutes and 4 hours, so as to obtain a calcium to phosphorus molar ratio of between 1 and 2.5 and while keeping the pH constant at a value of between 4 and 6;

iii) heat treating the dispersion obtained in stage ii) at a temperature of between 50°C and 95°C;

iv) separating the platelets formed from the dispersion obtained in stage iii);

and in that it uses, in at least one of stages i) or ii), solutions comprising an ammonium ion.

11. Process for preparing the platelets according to Claims 1 to 3 and 7, characterized in that it comprises the following stages:

i) preparing a solution of calcium salts, the pH of which is between 4 and 6;

ii) adding a phosphate solution to the solution obtained in stage i) over a period of time of between 30 minutes and 4 hours, so as to obtain a calcium to phosphorus molar ratio of between 1 and 2.5 and while keeping the pH constant at a value of between 4 and 6;

iii) heat treating the dispersion obtained in stage ii) at a temperature of between 50°C and 95°C;

iv) adjusting the pH of the dispersion obtained in stage iii) to a value of between 8 and 9.5;

v) separating the platelets formed from the dispersion obtained in stage iv);

and in that it uses, in at least one of stages i) or ii), solutions comprising an ammonium ion.

12. Process according to either of Claims 10 and 11, characterized in that the solution of calcium salts is a $CaCl_2$ or $Ca(NO_3)_2$ solution.

13. Process according to one of Claims 10 to 12, characterized in that the concentration of calcium salts in the solution is between 1M and 2.5M, preferably between 1.25M and 1.75M.

14. Process according to one of Claims 10 to

13, characterized in that the phosphate salt solution is a solution of ammonium phosphate or of sodium phosphate, in particular of $(NH_4)_2(HPO_4)$ or $(NH_4)(H_2PO_4)$.

15. Process according to one of Claims 10 to 14, characterized in that the calcium to phosphorus molar ratio is between 1.3 and 1.7

16. Process according to one of Claims 10 to 15, characterized in that the calcium to phosphorus molar ratio is 1.66.

17. Process according to one of Claims 10 to 16, characterized in that the temperature of the heat treatment in stage iii) is between 60°C and 90°C.

18. Use of the platelets according to one of Claims 1 to 7 or of a dispersion according to either of Claims 8 and 9 as reinforcing filler, polishing agent, building materials, additive for oral formulations, in particular dentifrices, or encapsulating agent.